

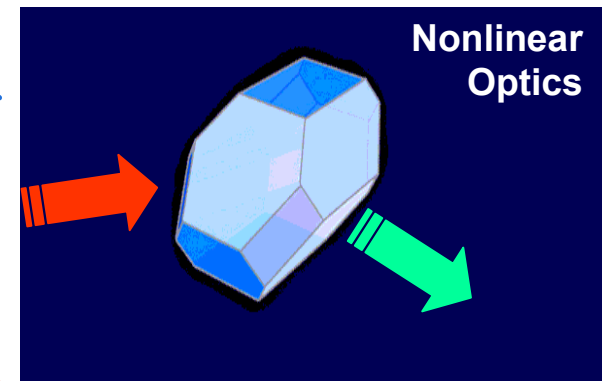
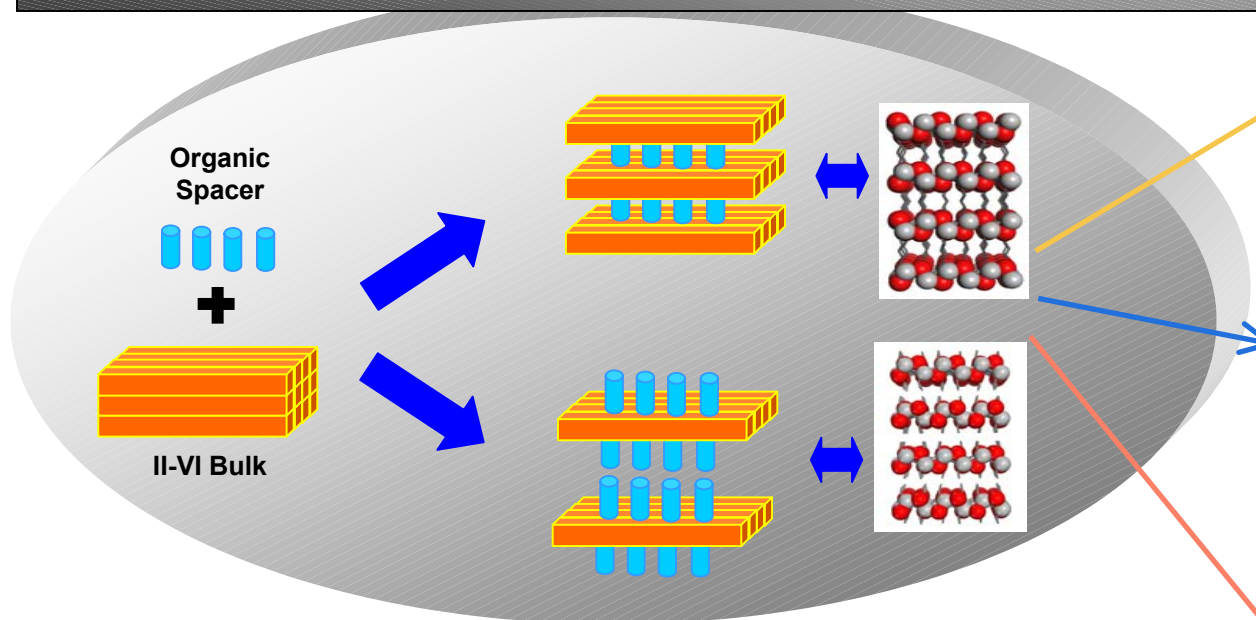
ORGANIC-INORGANIC HYBRID CHALCOGENIDES

Jing Li

Rutgers University

DMR-0094872

(2002-2003)



- Unique hybrid nanostructures by design (1D-3D).
- Properties resemble smallest colloidal quantum dots but perfectly ordered with uniform size.
- High absorption coefficients.
- Band gaps completely tunable (1.7 - 4.5 eV).
- Low effective electron & hole masses, high mobility.
- Nonlinear optical behavior.
- Strong photoluminescence (PL) emission.
- light weight, flexible, stable, low cost.



X.-Y. Huang, J. Li, Y. Zhang, A. Mascarenhas *J. Am. Chem. Soc.*, 2003, 125, 1249.
Li, J.; Huang, X. -Y. US Patent # 6,563,186 B2, 2003.



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Education and Outreach Activities

- Five graduate students (Xiaoying Huang, JeongYong Lee, Princy Varughese, Ke Wu, Min Wu,) were supported directly or indirectly by this grant.
- Five undergraduate students (Ravish Amin, Sean Kelly, Brett Parker, Michelle Sander, Jessica Strong) participated in REU research activities.
- One postdoctoral associate contributed to this work.
- One high school student (Samantha Levine) conducted her senior research project during 2002-3 academic year. She is now a undergraduate at Cal. Tech.
- Two new experiments on nanomaterials were developed and implemented in undergraduate Physical and Analytical Chemistry labs.
- The PI continued to serve as a Program Director of Girls in Engineering, Mathematics and Science (GEMS) program.
- The PI served as guest speaker for HighTech Workshop at Rowan University in the summer of 2003.
- The PI visited Bergen County Academies.

